**ECE 333 Green Electric Energy - Quiz 3**

*Tuesday, October 12, 2017.*

**Duration: 20 minutes**

**Name: _____ last 4 digits of your UIN:_____**

**Closed book, closed notes, calculators and cell phones are not allowed.**

**Show all you work and always indicate the units, as appropriate.**

**Problem 1 [10 points]: Which of the following is not one of the beneficial impacts of wind?**

a. No air pollution
b. No CO2 emissions
c. Large water requirements
d. Net decrease in pollution due to displacement of energy from fossil-fired sources

**Problem 2 [10 points]: What is the cumulative wind capacity of China by the end of 2016?**

a. 1.69 GW b. 16.9 GW c. 169 GW

**Problem 3 [10 points]: Which of the following states has the highest cumulative wind capacity by the end of 2016?**

a. Illinois b. California c. Texas d. Massachusetts

**Problem 4 [10 points]: What is the global cumulative wind capacity by the end of 2016?**

a. 4.87 GW b. 48.7 GW c. 487 GW

**Problem 5 [10 points]: Which of the following countries has the highest wind capacity additions in 2016?**

a. US b. China c. Turkey

**Problem 6 [10 points]: Which of the following countries is not among the top 10 countries for highest cumulative wind capacity?**

a. US b. Germany c. Spain d. Latvia

**Problem 7 [10 points]: Fill in the blank in the following statement with one of the choices below.**

*Of the 8,203 MW of wind installed in 2016 in the US, 43% (3,530 MW) used turbines from* _____.

a. Vestas b. GE Wind c. Siemens d. Gamesa

**Problem 8 [10 points]: Which of the following is not correct about offshore wind power?**

a. Offshore wind is typically faster and steadier than onshore wind
b. Offshore wind entails lower construction and maintenance costs than onshore wind
c. Offshore wind may be an unwelcome sight for local residents and impacts the marine life
d. As of June 2017, a total of 26 offshore wind projects totaling more than 24.1 GW are in various stages of development in the US

**Problem 9 [10 points]: Which of the following statements is not correct about the variation of wind with time?**

a. A key consideration in the effective utilization of wind is the correlation between wind and loads: how good is the timing of high–wind speeds vis–à–vis the loads that must be supplied
b. In the Midwest the wind tends to blow the strongest when the electric load is the highest and so there is a virtually perfect match between wind generation and the loads
c. Wind patterns vary quite a bit with geography – costal and mountain regions have more steady winds – and weather conditions, such as the temperature

**Problem 10 [10 points]: Which country has the highest estimated wind generation as a percentage of electricity consumption in 2016?**

a. Denmark b. China c. Ireland d. Spain